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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,595	01/22/2002	Donald Pannell	MP0078	7132

26703 7590 09/20/2006

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EXAMINER	
WONG, WARNER	

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/054,595	PANNELL, DONALD	
	Examiner	Art Unit	
	Warner Wong	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-84* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8-11 and 21-24* is/are allowed.

6)☒ Claim(s) *1-7,12-20,25-33,38-46,51-54,56-62,67-70,72,78,83 and 84* is/are rejected.

7)☒ Claim(s) *34-37,47-50,55,63-66,71,79-82* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claim 1-4, 6, 12,14-17, 19, 25, 27-30, 32, 38, 40-43, 45 and 51 are rejected under 35 U.S.C. 102(e) as being anticipated by Smeulders (US 6,741,559).

Regarding claims 1, 14, 27, 40, Smeulders describes a method/apparatus using the half-duplex channel CSMA/CD standard (col. 2, lines 16-25), comprising:

(a transmitter) to transmitting a first frame/data over a half-duplex channel; (col. 5, lines 18-27);

(a controller) terminating transmission of the first frame when a collision is detected during the transmission (col. 7, lines 36-45).

(the transmitter) transmits a received second frame before retransmitting the first frame when the second frame has a higher class of service (COS) than the first frame (col. 7, lines 49-57).

Regarding claim 14, Smeulders fail to disclose a computer media embodying instructions which performs the process of the above-mentioned method/apparatus.

The examiner takes official notice that the above mentioned method/apparatus process can be incorporated by a computer media embodying instructions.

It would have been obvious for one with ordinary skill of art at the time of invention by applicant to incorporate the process performed by the method/apparatus into instructions saved in a computer media. The motivation for the incorporation of such process into computer media instructions is that it may provide economical cost savings by using software implementable means versus hardware implementable means.

Regarding claims 2, 15, 28, 41, Smeulders describe all limitations set forth in claim 1.

Smeulders further inherently describe:

sending a jam signal before transmitting another frame (CSMA/CD technology includes sending a jam signal before transmission of another frame, as separately explained by Halsall, "Data Communications, Computer Networks and Open Systems" text p. 262, but not incorporated as a reference).

Regarding claims 3, 16, 29, 42, Smeulders describe all limitations set forth in claims 1, 14, 27 and 40 respectively.

Smeulders further inherently describe:

after terminating the transmission, incrementing an attempt count (by inherent counter), and discarding the first frame when the attempt count exceeds a predetermined attempt threshold (col. 7, lines 36-41, 802.3's Ethernet binary

exponential back-off process, also described as a prior art by Krishna, U.S. Patent 5,822,538, col. 1, lines 39-50 but not used as a reference).

Regarding claims 4, 17, 30, 43, Smeulders describe all limitations set forth in claims 1, 14, 27 and 40 respectively.

Smeulders further inherently describe:

after terminating the transmission, incrementing an attempt count (by inherent counter), and discarding the first frame when the attempt count exceeds a predetermined attempt threshold for the class of service (COS) of the first frame (col. 7, lines 36-57, prioritized data with 802.3's Ethernet binary exponential back-off process, which is also described as a prior art by Krishna, U.S. Patent 5,822,538, col. 1, lines 39-50 but not used as a reference).

Regarding claims 6, 12, 19, 25, 32, 38, 45, and 51, Smeulders combined describe all limitations set forth in claim 1.

Smeulders further describes:

computing a back-off period after terminating the transmission, and retransmitting the first frame when the back-off period has elapsed and no frames of higher class of service than the first frame is ready for transmission) (col. 7, lines 49-57).

2. **Claims 5, 18, 31 and 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Smeulders as applied to claim 1 above, and further in view of Hazu (5,455,841).

Smeulders describe all limitations set form in claims 1, 14, 27 and 40 respectively.

Smeulders further inherently describe:

after terminating the transmission, incrementing an attempt count (by inherent counter), and discarding the first frame when the attempt count exceeds a predetermined attempt threshold the class of service (COS) of the first frame (col. 7, lines 36-57, prioritized data with 802.3's Ethernet binary exponential back-off process, which is also described as a prior art by Krishna, U.S. Patent 5,822,538, col. 1, lines 39-50 but not used as a reference).

Smeulders fail to describe:

discarding the first frame when the attempt count exceeds a predetermined threshold and the COS of the first frame falls below a predetermined discard threshold.

Hazu describes:

(discarding only if) within the class of service the first frame falls below a predetermined discard threshold (col. 4, lines 64-66 and col. 5, lines 1-2, "The lower cell loss priority [threshold] indicates that the cell .. can be discarded when the network overflowed, and the higher cell loss priority indicates that the cell .. cannot be discarded under any circumstances.")

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate a discard threshold (Cell Loss Priority) for each COS. The motivation being that such incorporation controls and prevents unbound input frame build-ups, leading to device overload and failure.

3. **Claims 7, 13, 20, 26, 33, 39, 46, 52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Smeulders as applied to claim 6, and further in view of Krishna.

Smeulders describe all limitations set forth in claims 6, 12, 19, 25, 32, 38, 45 and 51 respectively.

Smeulders fail to describe:

computing the back-off period as a function of the class of service;

Krishna describes:

computing the back-off period as a function of the class of service (i.e. priority) (fig. 2B, #74, 80,82).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate a back-off period as a function of class of service. The motivation being that it will support transmission frames with higher priority/QOS which are more time-sensitive with bounded latency (Krishna, col. 2,lines 61-64)..

4. Claims 53-54, 56, 61, 67, 69,70,72,77 and 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saxena (2003/0103517) in view of Smeulders.

Regarding claims 53 and 69, Saxena describes an Ethernet (i.e. IEEE 802.3 or CSMA/CD per IEEE working group definition) based switch comprising:

a first/second port (fig. 1, #105a/105c) in communication with a first half-duplex channel (half-duplex inherent from Ethernet definition);

a memory (fig. 1, #125);

wherein the first port communicates with the second port via the memory (paragraph 21);

wherein the first/second port comprises:

a first/second transmitter to transmit data over the first half-duplex channel (inherent in ports that transmit);

a first/second controller (fig. 1, #130a/130c);

Saxena fails to describe:

(the first/second transmitter) transmitting a first/third frame;

(the first/second controller) terminating [the first/second transmitter from] transmission of a first/second frame [of the data] when a collision is detected during the transmission.

Smeulders describes:

(a transmitter) to transmitting a first /data over a half-duplex channel; (col. 5, lines 18-27);

(a controller) terminating transmission of the first frame when a collision is detected during the transmission; (col. 7, lines 36-45).

(the transmitter) transmits a received second frame before retransmitting the first frame when the second frame has a higher class of service (COS) than the first frame (col. 7, lines 49-57).

(the first/second transmitter) transmitting a first/third data frame (col. 5, lines 18-27);

(the first/second controller) terminating [the first/second transmitter from] transmission of a first/second data frame when a collision is detected during the transmission and to determine a class of service (priority) for each frame (col. 7, lines 36-45);

the first/second transmitter transmits a second/fourth frame before retransmitting the first/third frame when the second/fourth frame has a higher class of service (COS) than the first frame (col. 7, lines 49-53).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate Smeulders's prioritization in frame transmission to the Ethernet switch of Saxena. The motivation being that transmission frames with higher priority may be time-sensitive and should be transmitted first (Smeulders, col. 6-13).

Regarding claims 54 and 70, Saxena and Smeulders combined describe all limitations set forth in claims 53 and 69 respectively.

Saxena further describes:

a (first) memory portion to store the first and second frames and another/second memory portion to store the third and forth frames (paragraph 23, where copies of received data frame has particular locations);

Regarding claims 56 and 72, Saxena and Smeulders combined describe all limitations set forth in claim 53 and 69 respectively. Saxena further describes:

Sending a jam signal before transmitting another frame (paragraph 20, where Ethernet = CSMA/CD = 802.3 (see definition within www.ieee802.org), a technology

which includes sending a jam signal before transmission of another frame, as separately explained by Halsall, "Data Communications, Computer Networks and Open Systems" text p. 262, but not incorporated as a reference).

Regarding claims 57 and 73, Saxena and Smeulders combined describe all limitations set forth in claims 53 and 69 respectively.

Saxena further inherently describes:

after terminating the transmission, incrementing an attempt count by a counter, 802.3 comprising the Ethernet binary exponential back-off process, also described as a prior art by Krishna, U.S. Patent 5,822,538, col. 1, lines 39-50 but not used as a reference).

Regarding claims 61, 67, 77 and 83 Saxena and Smeulders describe all limitations set forth in claims 53 and 69 respectively.

Saxena inherently describes:

computing a back-off period after terminating the transmission (whether or not there are frames of higher class of service than the first frame ready for transmission), and retransmitting the first frame when the back-off period has elapsed (paragraph 20, Ethernet = CSMCA/CD, where upon collision which terminates transmission, the method computes a back-off period for retransmission).

5. Claims 57-59 and 73-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saxena in view of Smeulders, and further in view of Krishna (5,822,538).

Regarding claims 57 and 73, Saxena and Smeulders combined describe all limitations set forth in claim 1.

Saxena fails to describe:

incrementing an attempt count by a counter.

Smeulders further inherently describe:

incrementing an attempt count (by inherent counter) (paragraph 20, Ethernet = CSMA/CD = 802.3, where the Ethernet binary exponential back-off process has an attempt counter, also described as a prior art by Krishna, U.S. Patent 5,822,538, col. 1, lines 39-50 but not used as a reference).

Regarding claims 58 and 74, Saxena and Smeulders combined describe all limitations set forth in claim 57 and 73 respectively.

Saxena further inherently describes:

after terminating the transmission, incrementing an attempt count, and discarding the first frame when the attempt count exceeds a predetermined attempt threshold (paragraph 20, Ethernet = CSMA/CD = 802.3 with the Ethernet binary exponential back-off process, also described as a prior art by Krishna, U.S. Patent 5,822,538, col. 1, lines 39-50 but not used as a reference).

Regarding claims 59 and 75, Saxena and Smeulders combined describe all limitations set forth in claims 57 and 73 respectively.

Saxena inherently describes:

after terminating the transmission, incrementing an attempt count, and discarding the first frame when the attempt count exceeds a predetermined attempt threshold

(paragraph 20, Ethernet = CSMA/CD = 802.3 with the Ethernet binary exponential back-off process, also described as a prior art by Krishna, U.S. Patent 5,822,538, col. 1, lines 39-50 but not used as a reference).

Saxena fails to describe:

discarding the first frame when the attempt count exceeds a predetermined attempt threshold for the class/QOS of service of the first frame;

Smeulders further describes:

discarding the first frame when the attempt count exceeds a predetermined attempt threshold for the class/QOS of service of the first frame (col. 7, lines 36-57, prioritized data with 802.3's Ethernet binary exponential back-off process, which is also described as a prior art by Krishna, U.S. Patent 5,822,538, col. 1, lines 39-50 but not used as a reference).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate Smeulders's prioritization in frame transmission to the Ethernet switch of Saxena. The motivation being that transmission frames with higher priority may be time-sensitive and should be transmitted first (Smeulders, col. 6-13).

6. **Claims 60 and 76** are rejected under 35 U.S.C. 103(a) as being unpatentable over Saxena in view of Smeulders as applied to claims 57 and 73 above respectively, and further in view of Hazu (5,455,841).

Saxena and Smeulders combined describe all limitations set form in claims 57 and 73

Saxena further inherently describes:

after terminating the transmission, incrementing the attempt count (by inherent counter), and discarding the first frame when the attempt count exceeds a predetermined attempt threshold (paragraph 20, Ethernet = CSMA/CD = 802.3 with the Ethernet binary exponential back-off process, also described as a prior art by Krishna, U.S. Patent 5,822,538, col. 1, lines 39-50 but not used as a reference).

Saxena fails to describe:

discarding the first frame when the attempt count of transmission attempts by the attempt counter exceeds a predetermined attempt threshold and the class of service of the first frame falls below a predetermined discard threshold.

Hazu describes:

(discarding only if) within the class of service the first frame falls below a predetermined discard threshold (col. 4, lines 64-66 and col. 5, lines 1-2, "The lower cell loss priority [threshold] indicates that the cell .. can be discarded when the network overflowed, and the higher cell loss priority indicates that the cell .. cannot be discarded under any circumstances.")

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate a discard threshold (Cell Loss Priority) for each COS. The motivation being that such incorporation controls and prevents unbound input frame build-ups, leading to device overload and failure.

7. **Claims 62, 68, 78 and 84** are rejected under 35 U.S.C. 103(a) as being unpatentable over Saxena in view of Smeulders as applied to claims 61, 67, 77 and 83 respectively, and further in view of Krishna.

Saxena and Smeulders combined describe all limitations set forth in claims 61, 67, 77 and 83.

Saxena fails to describe:

Computing the back-off period as a function of the class of service.

Krishna describes:

computing the back-off period as a function of the class of service (i.e. priority) (fig. 2B, #74, 80,82).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate a back-off period as a function of class of service. The motivation being that it will support transmission frames with higher priority/QOS which are more time-sensitive with bounded latency (Krishna, col. 2,lines 61-64).

Allowable Subject Matter

8. Claims 8-11 and 21-24 allowed.

9. Claims 34-37, 47-50, 55, 63-66, 71 and 79-82 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments with respect to independent claims 1, 14, 27, 40, 53 and 69 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Warner Wong whose telephone number is 571-272-8197. The examiner can normally be reached on 5:30AM - 2:00PM, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Warner Wong
Examiner
Art Unit 2616

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SUPERVISORY PATENT EXAMINER